NEW COMBINATIONS IN PERYMENIUM WITH SPECIAL REFERENCE TO P. BUPHTHALMOIDES (ASTERACEAE)

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ABSTRACT

Perymeniopsis ovalifolia (A.Gray) H. Rob. is transferred into Perymenium as P. ovalifolium (A. Gray) B. Turner. Perymenium buphthalmoides is given an inclusive treatment in which five regional varieties are recognized, one of these 'previously described as P. diguetii McVaugh, and another, from Sonora, Mexico, is described as new.

Robinson (1978) noted that Oyedaea ovalifolium A. Gray was not properly positioned in the genus Oyedaea, being more closely related to Perymenium. He believed it did not readily fit in the lattter genus, largely because of its neuter, sterile, ray florets, "and the numerous stomates on the corolla lobes." Fay (1978), who revised the genus Perymenium, did not cope with the problem of Oyedaea ovalifolia, presumably excluding this from Perymenium because of its sterile rays. Nevertheless, the taxon appears closely related to a group of Perymenium species centering around P. gymnolomioides, which is a clambering shrub (like P. ovalifolium) with completely winged disk achenes (also like P. ovalifolium); indeed, except for the technical character of neuter ray florets, I can find no definitive characters with which to exclude it from Perymenium. In addition, the chromosome number of P. ovalifolium is reported as n=ca 30 pairs, this presumably being a tetraploid on a base of x = 15, as is all of Perymenium.

In any case, in a forthcoming treatment of Perymenium for Mexico I intend to treat Oyedaea ovalifolia as belonging to that genus and so make the appropriate combination here.

PERYMENIUM OVALIFOLIUM (A. Gray) B. Turner, comb. nov.

--Based upon Oyedaea ovalifolia A. Gray, Proc. Amer. Acad. Arts 5: 183. 1861.

Within Perymenium, as treated by Fay (1978), there exist four small, wholly herbaceous, species, the rest being shrubs, subshrubs or suffruticose herbs, the stems of which apparently do not die back to the roots. These are 1). P. oxycarphum, a widespread species along the Pacific slopes with small, mostly graduate, involucral bracts; 2). P. buphthalmoides, also widespread but with a more interior distribution, having nongraduate involucral bracts; 3). P. diguetii, a rather localized endemic of Durango and Nayarit, with mostly procumbent stems; and 4). P. jaliscense, a localized endemic near Guadalajara, Jalisco with erect

stems and elliptic, glabrescent, leaves.

McVaugh (1984) treated P. oxycarphum as synonymous (albeit questionably) with P. jaliscense, but accepted the remaining species. Within the widespread P. buphthalmoides he recognized four varieties, noting the group to be "a highly variable species complex." He recognized var. buphthalmoides as a widespread taxon extending from Sonora to Oaxaca; var. flexuosum (Greenm.) McVaugh as a localized taxon (western Michoacan and Mexico State) of generally higher elevations (2,500-3,000 m); var. occidentale McVaugh along the Pacific slopes (300-2,350 m); and var. tenellum (A. Gray) McVaugh from the Central Plateau of Mexico extending from Chihuahua to Mexico State.

Fay (1978) recognized only three varieties under P. buphthalmoides: 1). var. buphthalmoides (including var. flexuosum); 2). var. occidentale; and 3). var. tenellum.

I agree with Fay's treatment of P. buphthalmoides (accepting var. flexuosum as an high elevational form of var. buphthalmoides, but would add a fourth taxon, var. sonoranum, to the complex, and reduce to varietal status P. diguetii.

The latter is remarkably variable in the region southwest of Durango City; indeed, numerous intergrades between this and var. tenellum may be found. At least the variation appears to be one of a clinal nature, and not that expected from in situ hybridization with clear putative hybrids and both parents present.

A key to the various varietal taxon within this complex is provided below, along with a map showing their distribution. The latter is constructed from Fay's data plus new collections at TEX and additional sheets from ARIZ, ASU and LL. Finally, it should be noted that occasional plants of P. oxycarphum may be mistaken for P. buphthalmoides, usually either very old plants, where the involure has not matured, or where, with age the inner bracts have been sloughed off. Vegetatively, P. oxycarphum much resembles P. buphthalmoides var. tenellum and one or two sheets of the former were identified tentatively as the latter by Fay (1978).

KEY TO VARIETIES

1. Receptacular bracts (chaff), mostly 3-5 mm long; involucres 5-7(8) mm high; heads mostly borne single or 1-2 on peduncles with appressed hairs; Central Plateau, Jal to Oax.....var. buphthalmoides

1. Receptacular bracts mostly (4)5-8 mm long; involucres (4)7-12 mm high; heads borne single or 2-4 on peduncles with appressed or spreading hairs (2)

    2. Stems prostrate; outer involucral bracts longer than the inner, mostly (4)8-12 mm long; heads solitary on peduncles with spreading hairs; achenes with 1 bristle and mostly very reduced awns (0.0-0.3

mm long); Nay-Dur.....var. diguetii

2. Stems erect; outer involucral bracts shorter or longer than the inner, 5-14 mm long; heads solitary or borne 2-4 on a common peduncle (3)

3. Heads borne solitary, these arising terminal from out of a leafy stem, not at all borne 2-4 on a rather common elongate peduncle (4)

3. Heads borne (1)2-4 at the end of a rather naked common peduncle, not arising solitary at the apex of a single leafy stem; Son.....var. sonoranum

4. Involucral bracts 8-14 mm long, subequal; plants mostly small, 10-30 cm high, more or less recumbent, stems and foliage coarsely hispid; Central Plateau from Dur to Pue.....var. tenellum

4. Involucral bracts 5-8 mm long, the outer somewhat reduced; plants stiffly erect, 30-60 cm high; stem and foliage appressed-pubescent; Pacific slopes.....var. occidentale

var. BUPHTHALMOIDES

Perymenium flexuosum Greenm.
Perymenium buphthalmoides var. flexuosum (Greenm.) McVaugh

Stems 15-50 cm long, erect or recumbent below; leaves 3-6 cm long, 0.5-3.0 cm wide; petioles 1-4 mm long; blades strigillose; heads single or rarely 2 on peduncles mostly 5-10 cm long; involucral bracts mostly appressed, 5-7 mm long; chromosome number, n=ca 30 pairs.

This variety is largely confined to the Central Plateau from Jalisco and Nayarit to eastern Oaxaca. McVaugh (1984) recognized the var. flexuosum, largely by leaf shape (manifestly ovate with petioles 3-6 mm long) and distribution, at higher elevations (2500-3000 m); the var. buphthalmoides is said to have subsessile, elliptic to lanceolate, leaves, occurring at lower elevations (2000-2500 m). Since the types of both varieties are from the vicinity of Mexico City, there being much variation in leaf shape, etc., in this region, I accept Fay's treatment of var. flexuosum as a synonym of var. buphthalmoides.

var. DIGUETII (McVaugh) B. Turner, comb. nov.

Based upon Perymenium diguetii McVaugh, Contr. Univ. Michigan Herb. 9:437. 1972.

The type of this variety is from Nayarit and differs from the material in adjacent Durango in having very short involucral bracts (3.7-5.5 mm long). Nevertheless, in all other characters, the collections are very similar. Indeed, Fay (1978), while recognizing P. diguetii as a "good" species, nevertheless cited material of the latter from areas sw of

Durango City. We agree with this assessment and apply the varietal name diguetii to both, since in the latter region the taxon appears to intergrade with the var. tenellum to some considerable degree. An alternative treatment might recognize the prostrate plants with large involucres in sw Durago as a distinct variety, which would only emphasize the need to reduce diguettii to varietal status under P. buphthalmoides.

Specimens Examined: MEXICO. DURANGO: 25 mi W of Durango, route 40, stems prostrate, 24 Jul 1958, Correll & Johnston 20098 (LL); ca 32 mi W of Durango, 8300 ft, 2 Aug 1977, Bennett et al. 773 (TEX); 32.7 mi W of Durango, 8500 ft, 23 Jul 1955, Johnston 2687 (TEX); ca 31 mi SW of Durango, 16 Aug 1960, King 3749 (TEX). The latter two collections were annotated by Fay as Perymenium buphthalmoides var. tenellum.

var. OCCIDENTALE McVaugh, Contr. Univ. Michigan Herb. 9: 434. 1972.

A rather weakly defined taxon distinguished from var. buphthalmoides by its longer receptacular bracts and somewhat higher involucre, and by its more strict habit and sparsely strigose foliage. Intergrades between these occur.

PERYMENIUM BUPHTHALMOIDES var. SONORANUM B.Turner, var. nov.

Var. buphthalmoides simile sed caulibus strictibus, internodiis 5-18 cm longis, et capitulis (1) 2-4 (6) ad apices caulium portatis differt.

TYPE: MEXICO. SONORA: Yecora, 3 Aug 1970, Campbell W. Pennington 115 (holotype TEX).

ADDITIONAL SPECIMENS EXAMINED: MEXICO. CHIHUAHUA: Yapachic, 4 Sep 1971, Pennington 39 (TEX).

A very distinct taxon, perhaps deserving of specific rank. Fay (1978) cited the type as belonging to the var. buphthalmoides but in subsequent correspondence with me (Jan, 1981) he notes that this inclusion "has nagged at me continually" for it is far out of range and the upper portions of the plant appear somewhat shrubby; at least it is not certain that the shoots concerned arise from a caudex of the P. bupthalmoides type.

var. TENELLUM (A. Gray) McVaugh, Contr. Univ. Michigan Herb. 9: 435. 1972.

Perymenium rosei Rob. & Greenm.
Perymenium simulans Blake

This variety intergrades to the west with varieties diguetii and occidentale and to the south with var. buphthalmoides. Fay (1978) cites a number of intermediates between the latter and var. tenellum. As noted above, Fay positioned under this taxon, two sheets which I would assign to the var. diguetii. In addition, Fay (1978) cites a collection from 42 mi WSW of Cd. Durango (Maysilles 8490-A, MICH) which is in the

vicinity of these same specimens, and I can find little to distinguish among them.

LITERATURE CITED

Fay, S.J. 1978. Revision of Perymenium (Asteraceae-Heliantheae) in Mexico and Central America. Allertonia 1: 235-296.

McVaugh, R. 1984. Perymenium, in Flora Novo-Galiciana 12: 713-733.

Robinson, H. 1978...A new genus Perymeniopsis Phytologia 40: 495-496.

Fig.1. Distribution of *Perymenium buphthalmoides*

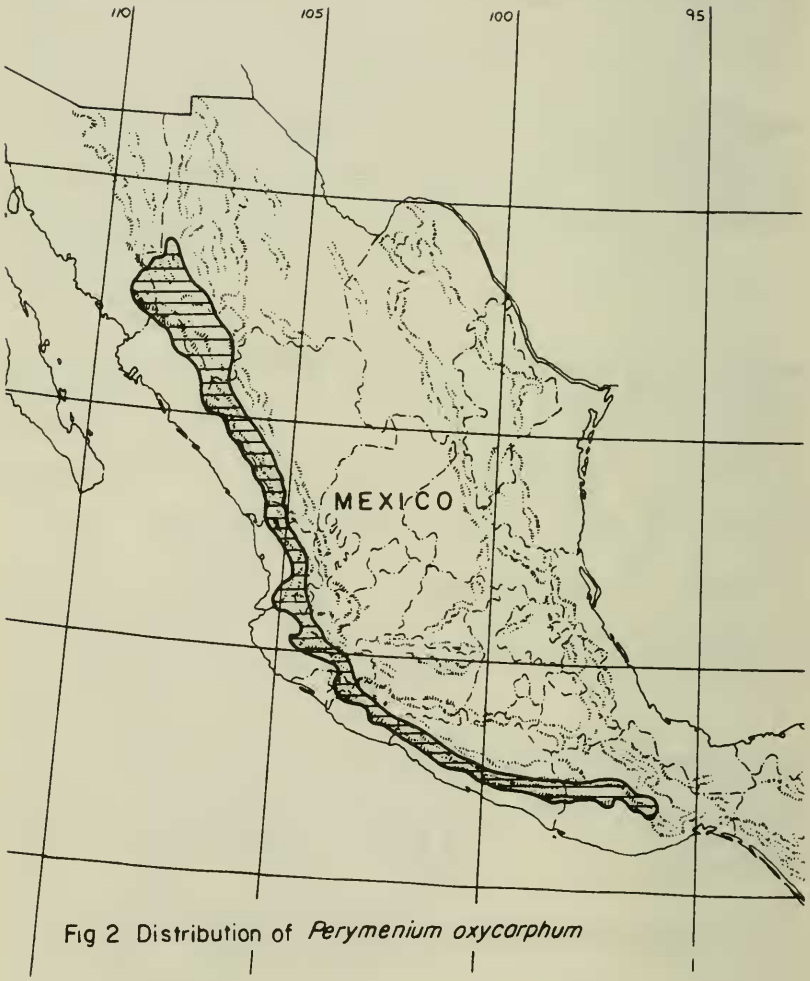

Fig 2 Distribution of *Perymenium oxycarphum*